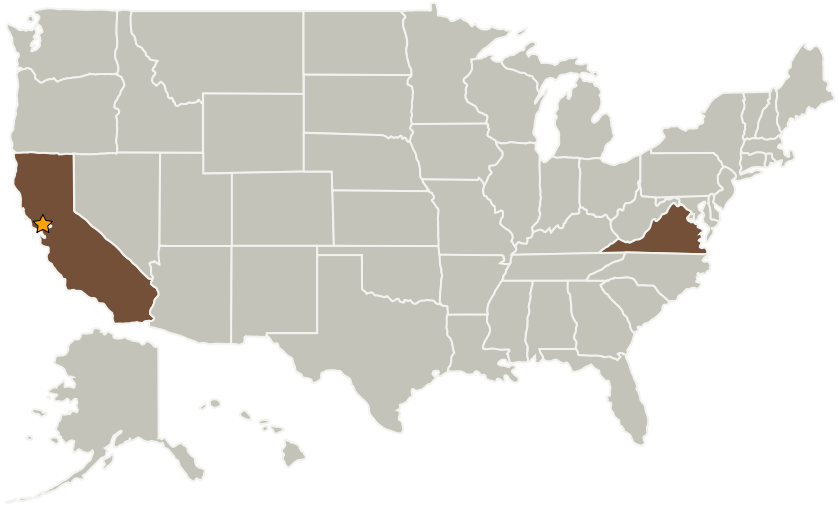
Integration of Performance Based Operations into ATM and TFM Simulations, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

FAA predicts that air traffic will double or even triple by 2025 and unless solutions that enable improvements in the use of airspace can be developed and implemented, significant airspace congestion will occur. Advancements in aircraft capabilities via new technologies can enable aircraft to operate more efficiently in the NAS and to operate safely in areas previously restricted. AeroTech proposes to enhance ATM simulations and the assessment of Performance Based Operations (PBO) by developing an Autonomous Aircraft Decision Making Model for Weather Hazard Avoidance based on the aircraft's weather hazard detection capabilities, ATC constraints, FAA regulations, and operator policies. The model will provide autonomous guidance for aircraft in ATM simulations such as FACET and ACES. PBO and traffic flow schemes can be assessed for any scenario by varying the detection capabilities of simulation aircraft, regulations, and/or policies, and examining deviation decisions, flight paths, safety impacts, and NAS throughput. Phase I will develop and test the Model's methodology and algorithms, and perform a proof of concept study. By the end of Phase II, the Model will have been implemented and tested in ATM simulations, and will enable researchers to improve NAS operations through new traffic flow techniques based on PBO.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Aerotech Research	Supporting Organization	Industry	Newport News, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts